

# CHAPTER 2

---

## **Configure and Manage Server Core**

### **IN THIS CHAPTER**

- ▶ Determine Your Need for Server Core
- ▶ Install Server Core
- ▶ Configure Server Core Postinstallation
- ▶ Manage Server Core
- ▶ Incorporate Server Core Changes in Windows Server 2008 R2
- ▶ Make Progress in Server Core Administration

## Determine Your Need for Server Core

**Scenario/Problem:** During the process of installing Windows Server 2008, perhaps you noticed the Server Core option. What exactly is Server Core, and does your particular company have a need to implement it?

**Solution:** Server Core is a new feature in the Windows Server world. It installs a command-line administration-only version of Windows Server 2008 that helps reduce the attack surface of the server. Traditionally, there are many attack options on a Microsoft server, and you, the administrator, need to be aware of that and take action to ensure security. However, with Server Core, less code is installed (that is, there is a smaller footprint), and with that reduction in code comes a reduction in the number of places an attacker can hit. Fewer moving parts equals fewer vulnerabilities.

**NOTE** What is the *attack surface area* of an operating system? Keep in mind that each application added to a system provides a corresponding opportunity for attack and so poses a risk. In addition, certain services may leave your system open to infiltration. This is all considered the attack surface, and the goal in securing a system is to reduce that surface, typically by turning off or removing features that are unnecessary.

Until you see a Server Core system for yourself, you may not believe that you are really going to be working from a command prompt again. But that is truly what you have at your disposal. In fact, the Explorer shell is not even installed. You may be surprised to learn that you aren't working with the new PowerShell command prompt.

**PS NOTE** At the time of this writing, PowerShell was not functional in Server Core because it requires the .NET Framework, which cannot be installed on a Server Core system at this time. The .NET team has worked on providing a modularized version for Server Core admins to be able to work with PowerShell, and this will be available in R2. See the section "Incorporate Server Core Changes in Server 2008 R2," later in this chapter.

Now, keep in mind that Server Core isn't able to provide all the server roles that a typical server would have. The supported roles in Server Core include the following:

- ▶ Active Directory Domain Services (AD DS)
- ▶ Active Directory Lightweight Directory Services (AD LDS)
- ▶ DHCP Server

- ▶ DNS Server
- ▶ File Services
- ▶ Internet Information Services (IIS)
- ▶ Print Services
- ▶ Streaming Media Services
- ▶ Windows Virtualization (Hyper-V)

And, as you will soon see, you cannot use the Server Manager tool to install these roles. Instead, you need to install them through the command line, using a tool called `ocsetup.exe`.

Keep in mind that third-party application software cannot typically be installed and managed on a Server Core server, so this server isn't going to be used for things like your antivirus management or even some of the management solutions that Microsoft provides that must be installed on top of the server and require certain underlying services to be running. What this is a good fit for in an environment, however, is in areas like DNS or DHCP services or even file services.

**NOTE** Although IIS is installable on Server Core, Server Core doesn't currently support ASP.NET. Due to the lack of support for managed code, there are many reasons you might not be able to use Server Core for your particular web server (for example, no IIS-ASPNET, IIS-NetFxExtensibility, IIS-ManagementConsole, IIS-ManagementService, IIS-LegacySnapIn, IIS-FTPManagement, WAS-NetFxEnvironment, and WAS-ConfigurationAPI).

---

## Install Server Core

**Scenario/Problem:** You have decided that Server Core is exactly what you need in your environment. What is involved in installing Server Core?

**Solution:** Installing Server Core is simple. The real work is what comes after you perform the installation and have to configure the server to function through the command-prompt interfaces rather than the typical GUI interfaces that you have become so used to. Before we address those concerns, let's get Server Core up and running.

The minimum requirements are your initial concern. You want to ensure that your hardware meets the following requirements:

- ▶ **RAM:** 512MB RAM (which is the same minimum for the full installation of Windows Server 2008), although 1GB or more is always appreciated, especially if Hyper-V will be utilized.

- ▶ **Processor:** 1GHz for an x86 processor or 1.4GHz for an x64 processor
- ▶ **Disk space:** 10GB

You certainly want to be prepared with your Windows Server 2008 installation media and with a valid product key, although you can evaluate a server for quite some time by extending the grace period (see the section “Extend the Evaluation,” later in this chapter).

**NOTE** You may be wondering whether your existing servers can run Windows Server 2008 or whether you need to purchase new systems. Each server in your environment may be a little different, depending on when you purchased those servers and what they are. There is a tool called the Microsoft Assessment and Planning Toolkit (MAP) that you can use to inventory your servers and generate a report to help determine which servers will work for your Windows Server 2008 installations. At the time of this writing, the tool is located at <http://technet.microsoft.com/en-us/library/bb977556.aspx>.

## Server Core Installation Options

When you are confident that you have a system capable of running Windows Server 2008 Server Core, perform the following steps:

1. Insert the disc, and when the auto-run Install Windows dialog appears, confirm the language, time and currency format, and keyboard or input method. Then click Next.
2. When you see the Install Now screen, click the blue and white arrow button.
3. In the Select the Operating System You Want to Install screen (shown in Figure 2.1), note that there are three Full Installation choices and three Server Core Installation choices. Select one of the Server Core options and click Next.

**NOTE** Server Core comes in Standard, Enterprise, and Datacenter editions for i386 and x64 platforms. You will probably opt for the Standard edition because most of the differences found in the Enterprise and Datacenter editions are not especially relevant in Server Core. The Enterprise Server Core does, however, get you more processor and memory support, as well as clustering. Datacenter provides the hardware program and 99.999% reliability, but you may not require these guarantees.

4. When you see the license terms, read or scan the terms and then select the I Accept the License Terms checkbox and then press Next.
5. When asked Which Type of Installation Do You Want? select Custom (Advanced).

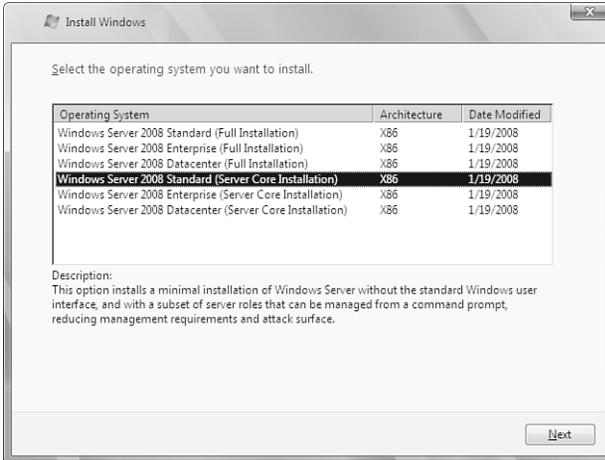


FIGURE 2.1  
Choosing the flavor of Server Core that you require.

**NOTE** Server Core requires a clean installation. You cannot upgrade from an earlier version or convert from a full installation to a Server Core installation. There is no upgrade to or from Server Core. So, if you install an incomplete version of Server Core, you cannot later upgrade to the full version. You have to start with a clean installation of the full version of Windows Server 2008.

- On the next screen, which asks, Where Do You Want to Install Windows? either choose some advanced options such as Load Driver or Drive Options (Advanced) or select the disk you want to use for the installation files. Click Next. The Installing Windows screen will appear, indicating that the system is copying files, expanding files, installing features, installing updates, and, finally, completing installation. Your system may reboot several times.
- When you see the login screen, type Administrator for the username and leave the password blank. Click OK.
- Provide and confirm a new password and then click OK. The system says Preparing Your Desktop, and you eventually see a simple command prompt, as shown in Figure 2.2.

Server Core is not much to look at to begin with. At this point, you have installed a server with very little happening on the desktop.

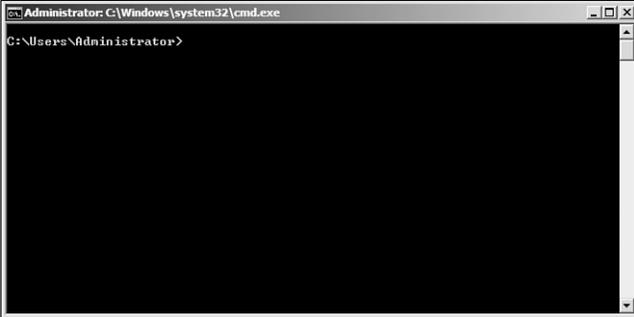


FIGURE 2.2

The Server Core `cmd.exe` desktop.

## Extend the Evaluation

Evaluating Windows Server 2008 software does not require product activation or entry of a product key. Any edition of Windows Server 2008 can be installed without activation and evaluated for an initial 60 days. If you need more time to evaluate Windows Server 2008, you can reset (or re-arm) the 60-day evaluation period three times, extending the original 60-day evaluation period by up to 180 days, for a total possible evaluation time of 240 days. After this time, you need to uninstall the software or upgrade to a fully licensed version of Windows Server 2008.

There is a support article from Microsoft, located at the time of this writing at <http://support.microsoft.com/kb/948472>, that should put your mind at ease that this isn't a trick that will get you in any kind of trouble with the Microsoft policy. Microsoft gives you a tool, called `s1mgr.vbs`, to extend the evaluation.

To start with, as your initial 60-day evaluation period comes to an end, you are going to want to check the number of days you have left. From the command prompt, type `s1mgr.vbs -dli` to see the current status of the evaluation period. To reset, or re-arm, the period for another 60 days, you type `s1mgr.vbs -rearm`. Remember that you can do this three times.

---

## Configure Server Core Postinstallation

**Scenario/Problem:** Server Core is installed, and the command prompt is up, but where do you go from here? How do you make the necessary configuration changes to the system?

**Solution:** First, it may be comforting to know that there are *some* GUI tools you might be able to use. For example, type `taskmgr`, and you see the familiar Task Manager, which tells you how your server is doing. You can also use Notepad, although you might prefer to use one of the two Control Panel applets that are still

available to you in GUI format. Type `timedate.cpl` (for the Date and Time applet) or `intl.cpl` (for the Regional and Language Options applet). These were allowed to stay in Server Core because they do not interfere with security, and they make configuring certain aspects of the OS easier.

**NOTE** If you accidentally close your command prompt, you can retrieve it by pressing `Ctrl+Alt+Delete`, choosing Task Manager, and then clicking File, Run and typing `cmd.exe`.

## Configuration Commands

Now, what would you normally need to do to configure a traditional server? Most likely, the following would come to mind:

- ▶ Changing the computer name
- ▶ Configuring network interfaces
- ▶ Joining the domain
- ▶ Installing (and activating) the license key
- ▶ Enabling the firewall
- ▶ Installing roles and/or features
- ▶ Adding hardware
- ▶ Configuring Windows Update

To perform these tasks, you need to become familiar (or refamiliarize yourself) with the following commands:

- ▶ **Netsh:** For many IP configuration settings. See <http://support.microsoft.com/kb/242468>.
- ▶ **Net User:** To change the administrative password. See <http://support.microsoft.com/kb/251394>.
- ▶ **Netdom:** To change the server name and/or join a domain. See <http://technet.microsoft.com/en-us/library/cc776879.aspx>.
- ▶ **Shutdown:** For after a configuration change, when you need to restart your system. See <http://support.microsoft.com/kb/317371>.
- ▶ **Slmgr:** The Software License Management tool, for installing and activating the license for the system. See <http://support.microsoft.com/kb/555965/en-us>.
- ▶ **Pnputil:** To help you install device drivers that aren't automatically included with Windows Server 2008. See <http://support.microsoft.com/kb/937793>.
- ▶ **SCRegEdit.wsf:** Enable Remote Desktop, automatic updates, terminal server client connections, and more. See <http://support.microsoft.com/kb/555964/en-us>.

**NOTE** For some of these commands to work, you might have to change your directory to `c:\Windows\System32`.

Let's look at how you might use these commands to make changes in Server Core.

To change the computer name, you would perform the following steps:

1. Locate the current name of the server by typing `hostname` or `ipconfig`.
2. Type `netdom renamecomputer <ComputerName> /NewName <NewComputerName>`.
3. Restart the computer, which you can do by using the `shutdown` command.

To make changes to the static IP settings on the server, you first need to identify your network interfaces. The `netsh` command is your friend in this case:

```
netsh interface ipv4 show interfaces
```

Make a note of the number in the `Idx` column for your network adapter(s). Then type the following:

```
Netsh interface ipv4 set address name="<Id>" source=static address=<the
➤static IP you are setting> mask=<the subnet mask for that
➤address> gateway=<the default gateway for that address>
```

If you want to use DHCP, you can type `source=dhcp`.

To configure your DNS settings, you need to perform an additional step with `Netsh` and type the following:

```
Netsh interface ipv4 add dnsserver name=<interface
➤name> address=<DNS Server IP Address> index=1
```

where `index` is the interface number.

To join your domain you would type this:

```
Netdom join <Name of Your Computer> /domain:<Name of Your
➤Domain> /userd:<UserName> /passwordd:*
```

Make sure to use a domain account that has permission in the domain to join computers to the domain. You can enter a password when you're prompted for one.

Before you activate, you are going to want to make sure you put in a license key. You may have done this during the installation process, but if you didn't, you need to now type the following:

```
Slmgr.vbs -ipk <License Key>
```

If you want to activate the server, you type the following:

```
Slmgr.vbs -ato
```

To configure the firewall, you use the `netsh advfirewall` command, although this takes a bit of work. A better method may be to take the Firewall snap-in from a system running Windows Vista or Windows Server 2008 and configure the settings remotely. However, you first need to enable remote management of the firewall by typing the following:

```
Netsh advfirewall set currentprofile settings remotemanagement enable
```

Moving on to the installation of hardware, you may find that simply plugging it in will work because the driver may be included with Windows Server 2008. If that is the case, you can install the hardware, and you are all set. If that is not the case, perform the following:

1. Copy the driver files to the Server Core system. To do this, from the command prompt type the following:

```
pnputil -i -a <Name of the INF file for the driver>
```

**NOTE** If your old DOS skills are a little rusty, it's time to start shaking the dust off some of those DOS books in your library...or just do a quick search online for basic DOS commands, such as copy.

2. If you want to see a list of drivers on the system, type the following:

```
sc query type=driver
```

3. While there are many other configuration commands you might want to investigate and use, for now, use the following to enable automatic updates:

```
cscript scregedit.wsf /AU /4
```

**NOTE** The 4 in this command is to automatically download and install updates. There are other options in the GUI portion, and they are represented at the command prompt by other numbers; however, they don't work with a Server Core server.

**NOTE** If configuring Server Core through the command line is not your cup of tea, you might consider searching for GUI alternatives. Several of them have been developed to make your life easier. One such tool, the Windows 2008 Server Core Configurator, is a collection of scripts that allows you to do all the tasks just discussed. You can locate this tool at [www.codeplex.com/CoreConfig](http://www.codeplex.com/CoreConfig).

## Install Roles and Features

While you may initially think of using Server Manager to install roles and features in Windows Server 2008, this console is not provided under Server Core. You therefore need to use the `ocsetup.exe` command.

The first thing you might want to do is see a list of the roles and features that are currently installed. To do this, simply type `oclist.exe` at the command prompt. Figure 2.3 shows the list that is returned.

```
Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>oclist
Use the listed update names with Ocsetup.exe to install/uninstall a server role
or optional feature.

Adding or removing the Active Directory role with OCSetup.exe is not supported.
It can leave your server in an unstable state. Always use DCPromo to install or
uninstall Active Directory.

=====
Microsoft-Windows-ServerCore-Package
Not Installed:BitLocker
Not Installed:BitLocker-RemoteAdminTool
Not Installed:ClientForNFS-Base
Not Installed:DFSR-Server
Not Installed:DFSR-Infrastructure-ServerEdition
Not Installed:DHCPServerCore
Not Installed:DirectoryServices-ADAM-ServerCore
Not Installed:DirectoryServices-DomainController-ServerFoundation
Not Installed:DNS-Server-Core-Role
Not Installed:FailoverCluster-Core
Not Installed:FRS-Infrastructure
Not Installed:IIS-WebServerRole

-----
Not Installed:IIS-FTPPublishingService
-----
Not Installed:IIS-FTPServer

-----
Not Installed:IIS-WebServer
-----
Not Installed:IIS-ApplicationDevelopment
-----
Not Installed:IIS-ASP
-----
Not Installed:IIS-CGI
-----
Not Installed:IIS-ISAPIExtensions
-----
Not Installed:IIS-ASP
-----
Not Installed:IIS-ISAPIFilter
```

FIGURE 2.3

Viewing a list of installed roles and features.

Using this list, you can now use the `ocsetup.exe` command to install roles and/or features by typing the following:

```
Start /w ocsetup "role/feature name"
```

**NOTE** The role/feature name is case-sensitive. See the list you pull up with `ocsetup.exe` for the correct role/feature name capitalization.

For example, if you want to install the DNS Server role, you type the following:

```
Start /w ocsetup DNS-Server-Core-Role
```

**NOTE** The `/w` prevents you from seeing the command prompt until the operation is complete. Therefore, if you see the command prompt, you know that the installation succeeded.

**NOTE** Installing Active Directory is a little different in Server Core than in Windows Server 2008. Much as in the full installation version of Windows Server 2008, you would still use `dcpromo` to install Active Directory. However, you cannot use the wizards as you would ordinarily do. Instead, you need to use an unattend file. Microsoft recommends that you run `dcpromo` on another server running Windows Server 2008 and create the unattend file for the installation. To install the role, you then type `dcpromo /unattend:<filename>`.

When you install Server Core, the Server service is installed by default, but there are additional file service features you might want to add, such as the following:

- ▶ File Replication Service (`FRS-Infrastructure`)
- ▶ Distributed File System service (`DFSN-Server`)
- ▶ Distributed File System Replication (`DFSR-Infrastructure-ServerEdition`)
- ▶ Services for Network File System (both `ServerforNFS-Base` and `ClientForNFS-Base`)

In addition to the roles you can install, Server Core supports the following optional features:

- ▶ Failover clustering (`FailoverCluster-Core`)
- ▶ Network load balancing (`NetworkLoadBalancingHeadlessServer`)
- ▶ Subsystem for UNIX-based applications (`SUACore`)
- ▶ Backup (`WindowsServerBackup`)
- ▶ Multipath I/O (`MultipathIo`)
- ▶ Removable storage (`Microsoft-Windows-RemovableStorageManagementCore`)
- ▶ BitLocker drive encryption (`BitLocker`)
- ▶ Simple Network Management Protocol (SNMP) (`SNMP-SC`)
- ▶ Windows Internet Name Service (WINS) (`WINS-SC`)
- ▶ Telnet client (`TelnetClient`)

Installing features is very similar to installing roles. In this case, you type `Start /w ocsetup <feature>` (remembering that the feature name is case-sensitive).

## Manage Server Core

**Scenario/Problem:** Server Core is installed, and you have it configured with the roles you want to utilize. At this point, you are concerned about the management side of a command-prompt-only server. How do you manage Server Core?

**Solution:** There are many ways to work with Server Core and manage the roles and features you have installed. One of them is to use a command prompt (either locally or through a remote connection), but that probably isn't what you want to here. You are hoping for a GUI method.

Well, in addition to using the command-prompt directly, you can also connect through Terminal Services or through Windows Remote Shell, but again, this probably isn't what you are looking for. You can also use remote Microsoft Management Console (MMC) snap-ins to manage Server Core systems in the same way you would use them to remotely administer other systems.

At this point, it should be obvious how to work with Server Core locally, so let's consider some of the remote options.

### Manage Server Core with Terminal Services

To connect to a Server Core system from a Terminal Services client, you have to enable Remote Desktop for Administration mode. You can do this on a Server Core system by typing the following at the command prompt:

```
Cscript c:\windows\system32\scregedit.wsf /ar 0
```

When this is complete (the screen says "Registry has been updated"), you can go to another system and open the Remote Desktop Connection program. (A quick way to do this if you are using Windows Vista is to run the `mstsc.exe` app from the Start menu's instant search bar.) You can use the IP address or the name of the server running Server Core, make the connection, and log in. Ultimately, you will still be working with a command prompt, however (which is why we don't have a figure here—it would simply be another command prompt).

Type `logoff` at the command prompt when you are finished.

### Manage with TS RemoteApp

Now, something a little more modern than managing via Terminal Services, although ultimately with the same end result, is the use of TS RemoteApp to publish the `cmd.exe` application. With Windows Server 2008, you have the ability to publish a specific application without having users connect to the entire desktop. In the case of Server Core, this becomes logical because there is nothing happening on the desktop.

To enable this feature on your Server Core system, you need to perform the following steps:

1. On another Windows Server 2008 system, add the Terminal Services role through Server Manager.
2. Open the MMC and add the TS RemoteApp MMC snap-in.
3. Connect to the Server Core system.
4. From the Results pane, select RemoteApp Programs and locate the `cmd.exe` application (located at `\\<ServerName>\c$\windows\system32\cmd.exe`).
5. From the Allow list, click Remote `cmd.exe` and then Create RDP Package.
6. Use the RDP package to connect to the server that is running Server Core.

## Manage with Windows Remote Shell

Using Windows Remote Shell to connect to a Server Core system requires you to know command-line syntax. You must first enable Windows Remote Shell on the Server Core system by performing the following steps:

1. Type `WinRM quickconfig` at the command prompt.
2. On another system, open a command prompt.
3. Use `WinRS.exe` to initiate all your commands to the remote Server Core system. For example, type `winrs -r:<Server Core System Name> dir c:\windows` to see the `c:\windows` directory information on your Server Core system.

At this point, you can perform any of the command-line tasks you normally would locally at the Server Core system but through the Remote Shell.

## Manage Server Core with MMC Snap-ins

This is what you may have been waiting for throughout this chapter: the ability to manage Server Core through familiar GUI snap-ins for your MMC snap-ins.

To get started, make sure the Windows Firewall (if it is configured on the Server Core system) will allow an MMC connection. You can allow all snap-ins to connect or allow only specific ones.

To allow all snap-ins to connect, type the following:

```
Netsh advfirewall firewall set rule group="remote administration"  
➤new enable=yes
```

Allowing only specific snap-ins requires a bit more work. You type the following:

```
Netsh advfirewall firewall set rule group="<rulegroup>" new enable=yes
```

**NOTE** The reason this second method may require a bit more work is because the rule groups are outlined for some, but not all, snap-ins. Some snap-ins simply do not have a rule group, in which case enabling the groups for Event Viewer, Services, or Shared Folders will often be enough to allow other snap-ins to work. For this reason, unless you have a major security concern, it would be easier to simply enable all snap-ins.

Some of the MMC snap-ins and corresponding rule group names are listed here:

- ▶ **Event Viewer:** Remote Event Log Management
- ▶ **Services:** Remote Services Management
- ▶ **Shared Folders:** File and Printer Sharing
- ▶ **Task Scheduler:** Remote Scheduled Tasks Management
- ▶ **Reliability and Performance Monitor:** Performance Logs and Alerts (and File Printer and Sharing)
- ▶ **Disk Management:** Remote Volume Management
- ▶ **Windows Firewall with Advanced Security:** Windows Firewall Remote Management

When you have the MMC configured on your Server Core system, you can begin managing with it, if you have the right credentials to do so. Another concern is whether the Server Core system is a domain member. If it isn't, you have a little more work to do in order to connect.

So, to begin with, if you are managing a Server Core system that is part of the domain, you perform the following steps:

1. Open an MMC snap-in. (Choose an easy one to work with and a familiar one, such as Computer Management. Or you can type `mmc` at the Start instant search bar and open a blank console.)
2. Right-click the top-left part of the hierarchy and select **Connect to Another Computer**.
3. Type the computer name of the Server Core system.

Now you should be able to use the snap-in the same way you would any other remote system you work on.

If, however, the Server Core system is *not* a part of the domain, you have to create a connection credentially to the Server Core system from your client machine. To do that, type the following:

```
Open a command prompt on the client machine and type: cmdkey /add:<Server  
➤Core System Name> /user:<Administrator Account User Name>  
➤/pass:<Administrator Password>
```

You can now manage the Server Core machine as you would any other system in the domain.

---

## Incorporate Server Core Changes in Windows Server 2008 R2

**Scenario/Problem:** Windows Server 2008 R2 comes with revisions to Server Core. Do those revisions affect your environment and your use of Server Core on a system running Windows Server 2008 R2?

**Solution:** Depending on what you use Server Core for in your environment, the following changes may or may not affect you:

- ▶ Active Directory Certificate Services has been added in R2.
- ▶ WoW64 support for 32-bit applications is now an optional feature and not installed by default.
- ▶ New optional features include a subset of the .NET Framework 2.0, a subset of the .NET Framework 3.0 and 3.5 (including Windows Communication Framework [WCF], Windows Workflow Framework [WF], and LINQ, but not including Windows Presentation Framework [WPF]).
- ▶ Windows PowerShell (woohoo!!!) will be functional in the R2 version of Server Core.
- ▶ ASP.NET and additional IIS support have been added. And although you cannot use the IIS GUI console in Server Core, you can use it remotely to manage IIS in R2 if the web management service is enabled and configured.
- ▶ FSRM (File Server Resource Manager) will provide new functionality designed to simplify storage management for all storage architectures.

**NOTE** When the word *subset* is used above for the .NET portions that have been added, the idea is that the Server Core team didn't seek to add to the footprint of the system with items that aren't necessary to Server Core. So, only those aspects that would make sense are implemented.

To install .NET 2.0, you run the following:

```
Start /w ocsetup NetFx2-ServerCore
```

To install .NET 3.0 and 3.5 functionality, you run the following:

```
Start /w ocsetup NetFx3-ServerCore
```

## Make Progress in Server Core Administration

**Scenario/Problem:** You have the basics down. The server is installed and configured, and you know how to manage the system. There must be more. Where do you go next?

**Solution:** There are many Server Core books currently on the market that you might want to consider, and two are especially interesting:

- ▶ *Administering Windows Server 2008 Server Core* by John Paul Mueller
- ▶ *Windows Server 2008 Server Core Administrator's Pocket Consultant* by Mitch Tulloch

However, the Internet may be a better option for locating quick, need-to-know information regarding your Server Core server.

Here are a few sites you might appreciate:

- ▶ **From the MSDN Microsoft Developer site:** [http://msdn.microsoft.com/en-us/library/ms723891\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/ms723891(VS.85).aspx)
- ▶ **From the Microsoft TechNet Online Magazine:**  
<http://technet.microsoft.com/en-us/magazine/2009.02.geekofalltrades.aspx?pr=blog>
- ▶ **The Server Core Microsoft blog site:** [http://blogs.technet.com/server\\_core/](http://blogs.technet.com/server_core/)